

# SECTOR 1

## SCOTLAND—THE FIRTH OF FORTH

**Plan.**—This sector describes the Firth of Forth and its approaches, followed by a description of the River Forth. The descriptive sequence is W along the S shore of the firth and then E along the N shore.

### General Remarks

**1.1** The approach to the Firth of Forth is about 12 miles wide and lies between Fife Ness, on the N side, and Bass Rock, off Gin Head, on the S side. The Isle of May ( $56^{\circ}11'N.$ ,  $2^{\circ}33'W.$ ) lies nearly midway between the entrance points. The entrance proper lies between Elie Ness, located 8 miles W of the Isle of May, and Fidra, an islet 6.7 miles S.

The Firth of Forth is important because of the large amount of traffic, but it also affords the only real refuge during E gales on this part of the coast. At Queensferry, located 20 miles within the entrance, the Firth of Forth is spanned by both road and railway bridges. Vessels of light draft can proceed at HW as far as Stirling, where navigation practically ceases, a total distance, including windings, of 62 miles.

Several piers and tidal harbors are situated within this area including Rosyth Harbor, Grangemouth, Hound Point Oil Terminal, Leith, and Braefoot Bay LNG/LPG Terminal. There are several designated anchorage areas within the firth which may best be seen on the chart.

**Tides—Currents.**—Tides at the Port of Leith rise about 5.6m at springs and 4.5m at neaps.

In the outer part of the Firth of Forth, between the entrance and Inchkeith, the tidal currents are weak and only exceptionally exceed a spring velocity of 1 knot. The W current begins about 6 hours 15 minutes before HW at Leith and the E current begins about HW; the currents begin about 30 minutes later, on the N side of the firth, and 30 minutes earlier, on the S side, than these times.

In North Channel, 1 mile WNW of Inchkeith, the W current begins 5 hours 30 minutes before HW at Leith and the E current begins about 45 minutes after HW; the spring velocity of both is about 1 knot.

Close W of the Forth Road Bridge, the W current begins 5 hours 30 minutes before HW at Leith and has a spring velocity of 1.5 knots; the E current begins 30 minutes after HW and has a spring velocity of 2.25 knots.

In South Channel and in Leith Roads, the currents run similar to North Channel, but are rather weaker. An eddy sometimes forms off the harbor piers during the E current.

The currents run fairly strongly through the channels under the Forth Railway Bridge and there may be turbulence in the North Channel and off North Queensferry.

**Depths—Limitations.**—The depths abreast and S of the Isle of May are about 45m, mud bottom. These continue for about 12 miles W or to about 5 miles NW of Fidra. Then towards Leith Roads, the depths S of Inchkeith and through South Channel gradually decrease to 5.5 to 11m. The water is deeper, with depths of 18 to 20m to the N of Inchkeith.

A fairway channel for deep-draft vessels, with a least depth of 18.8m (2000), leads from seaward to the oil terminal at Hound Point. In the narrows under the bridges, the depths increase to over 54m, but rapidly decrease towards the W. There are depths of about 9m in the fairway of the River Forth; the approach channel to Grangemouth is dredged to a depth of 6.5m.

**Pilotage.**—The Forth Ports Authority exercises pilotage jurisdiction over the whole area of the Firth of Forth and the River Forth from a line joining North Carr Beacon and South Carr Beacon to the head of navigation at Stirling.

The Compulsory Pilotage Area is bounded by a line drawn from Kinghorn Ness ( $56^{\circ}04'N.$ ,  $3^{\circ}10'W.$ )  $090^{\circ}$  to the meridian of  $3^{\circ}W$ , then  $180^{\circ}$  to latitude  $56^{\circ}02'30''N$ , then  $266^{\circ}$  to the N point of Inchkeith, then  $260^{\circ}$  to the meridian of  $3^{\circ}15'22''W$ , then  $180^{\circ}$  to the S shore of the Forth. This area excludes any closed dock or lock, except for the Eastern Channel lying within Grangemouth Docks.

Pilotage, which is available 24 hours, is compulsory for the following vessels:

1. Vessels carrying passengers, excluding local ferries, exempted fishing boats, and pleasure craft.
2. Vessels not carrying passengers, as follows:
  - a. Vessels of 40m in length and over.
  - b. Dredges and other craft of 80m in length and over while engaged in dredging operations, civil engineering operations, or anti-pollution activities in the Firth of Forth.
  - c. Vessels of 8,000 dwt and over.

All vessels should send an ETA at the pilot boarding position and a request for pilotage to the Forth Ports Authority 24 hours, 12 hours, and 2 hours in advance. The message should include their grt, maximum draft, and port of destination. The ETA message sent 2 hours prior to arrival should be given by VHF directly to the pilot vessel. On the final approach to the boarding position, all vessels should, if possible, remain in direct VHF contact with the pilot vessel.

Pilot launches operate from Granton ( $55^{\circ}59'N.$ ,  $3^{\circ}13'W.$ ), on the S shore of the firth.

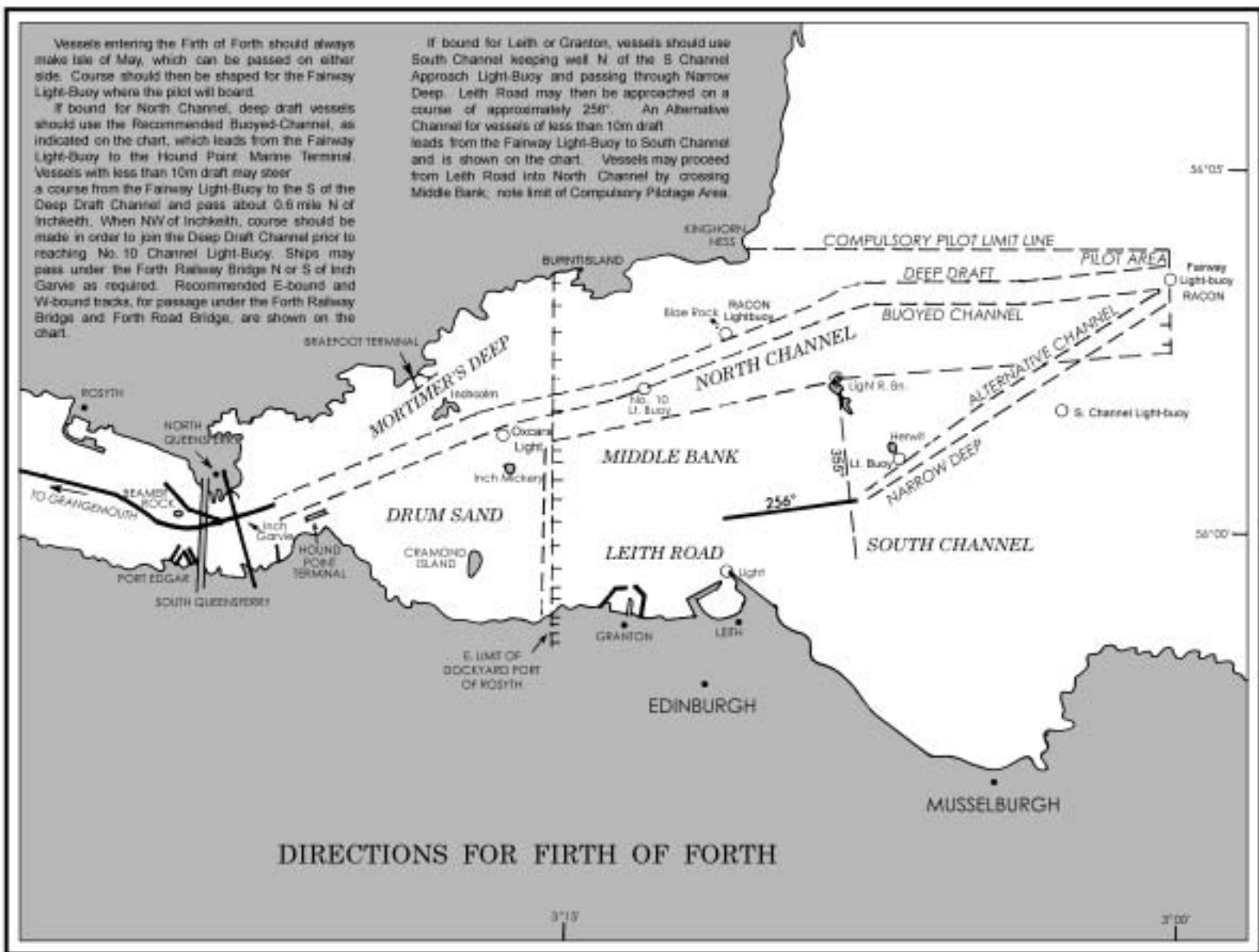
Vessels bound to or from Hound Point Terminal embark and disembark pilots at Fairway Lighted Buoy.

Inbound tankers proceeding to Hound Point Terminal and tankers proceeding from Anchorage Kilo (off Kirkcaldy) or Anchorage Alpha (off Aberlady Bay) must not pass S of latitude  $56^{\circ}05'N$  or W of longitude  $3^{\circ}00'W$  until the pilot has boarded and has control of the vessel.

Inbound vessels proceeding S of Inchkeith embark pilots NE of Narrow Deep Lighted Buoy ( $56^{\circ}01'N.$ ,  $3^{\circ}04'W.$ ).

Inbound vessels proceeding to Methil, Kirkcaldy, or S of Inchkeith should arrange an embarkation position.

Inbound vessels proceeding N of Inchkeith, except those bound to Hound Point Terminal, embark pilots close N of No. 3 Lighted Buoy ( $56^{\circ}03'N.$ ,  $3^{\circ}06'W.$ ), keeping N of the designated channel for deep-draft vessels.



Outbound vessels, other than those from Hound Point Terminal, passing N of Inchkeith, disembark their pilots between No. 4 Lighted Buoy and No. 2 Lighted Buoy, keeping S of the fairway designated for deep-draft vessels.

Pilots also embark in Methil Roads, Kirkcaldy Roads, and the designated anchorage areas.

In bad weather, the pilot boarding positions may be changed.

Vessels should always obtain clearance to approach the pilot boarding areas from the Forth Navigation Service.

All vessels carrying passengers must embark the pilot at Fairway Lighted Buoy.

Forth pilots can be contacted by E-mail, as follows:

[fns@forthports.co.uk](mailto:fns@forthports.co.uk)

**Regulations—Traffic Control.**—The Forth Navigation Service, a Vessel Traffic Service (VTS) scheme, is operated by the Forth Ports Authority. All inbound vessels shall advise the Service, not less than 24 hours in advance, of their ETA at the E limit of the Forth Port Authority (a line joining North Carr Beacon and South Carr Beacon). Any adjustments to the ETA of 2 hours or more shall be reported.

The Forth Navigation Service can be contacted by E-mail, as follows:

[fns@forthports.co.uk](mailto:fns@forthports.co.uk)

Vessels should contact the Forth Navigation Service on VHF channel 71 on reaching the E limit of the Forth Port Authority, stating ETA at the pilot boarding position or anchorage. Vessels should obtain clearance to proceed towards the pilot boarding position, designated anchorage area, or other destination as agreed with the Forth Navigation Service.

All vessels carrying dangerous or polluting cargo as classified in the International Maritime Dangerous Goods Code shall provide the following information in the pre-arrival report to the Forth Navigation Service:

1. Vessel name.
2. Summer dwt.
3. Country of registry.
4. Maximum draft.
5. Cargo.
6. Last port of call.
7. Destination.
8. ETA at the E limit of the Forth Port Authority or anchorage
9. Any defects, including defects and capability of vessel and/or personnel which may affect the safe navigation or maneuverability of the vessel.
10. Confirmation that both anchors will be cleared and available for immediate use at all times when within the Firth of Forth.
11. Confirmation that a Pilot Passage Plan has been prepared, discussed, and agreed on with the pilot upon boarding.

All vessels must maintain a continuous listening watch on VHF channel 71.

All vessels of 50 grt or more must report to the Forth Navigation Service when passing the reporting points (listed be-

low), which may best be seen on the chart. Outbound vessels shall report 1 hour prior to departure.

1. Forth Port Authority E limit (2°36'W.).
2. Fairway Lighted Buoy (56°03.5'N., 3°00.0'W.).
3. Due N or S of Inchkeith Light (56°02'N., 3°08'W.).
4. Oxcars Light (56°02'N., 3°17'W.).
5. No. 19 Lighted Buoy (56°01'N., 3°22'W.) (inbound only).
6. Dhu Craig Buoy (56°01'N., 3°27'W.) (outbound only).
7. Crombie Pier (56°02'N., 3°32'W.).
8. Hen and Chickens Lighted Buoy (56°02'N., 3°38'W.).

Tankers bound for Braefoot Bay Terminal must advise the Service of their ETA at least 72 hours in advance; any variation of more than 12 hours must be reported. Confirmation of the ETA is then required 24 hours in advance, with any variations of more than 4 hours being reported.

The Forth Ports Authority operates a Port Operation and Information Service, which includes radar surveillance from the Harbormaster's Office, Leith. Details of traffic, navigational warnings, and local weather forecasts are available upon request.

Vessels of more than 50 grt, except those which normally navigate solely within the port, intending to receive bunkers must give notification in writing to and request permission from the relevant Harbormaster or Forth Navigation Service not less than 24 hours in advance. Such vessels must also report by VHF to the relevant Harbormaster or Forth Navigation Service immediately before bunkering is to commence and upon completion.

**Regulations—Bylaws.**—Below are extracts from the bylaws issued by the Forth Ports Authority in 1983:

1. Except in so far as inconsistent with the Dockyard Port of Rosyth Order 1975, as amended by the Dockyard Port of Rosyth (Amendment) Order 1980 or such subsequent Order, these bylaws shall apply in the Forth including the Dockyard Port of Rosyth, but excluding the area of Her Majesty's Dockyard, Rosyth, and the approach fairway bound by a line joining Beamer Rock Light and the N pier of the Forth Road Bridge.
2. A vessel having a draft in excess of 10m and navigating in the fairway W of the Fairway Lighted Buoy may exhibit the appropriate lights and shape for a vessel constrained by draft.
3. Vessels must reduce speed if necessary and not approach within 100m when passing vessels berthed at Hound Point Marine Terminal or the Main Piers of the Forth Road Bridge.
4. Vessels must reduce speed and keep clear of ships anchored in designated berths B1 to B5 off Burntisland, if such ships have barges alongside.
5. No vessel shall enter or cross a fairway except when the fairway in the vicinity of the vessel is clear, and only in such manner as to not impede or endanger other vessels navigating in the fairway.
6. A vessel under sail or power, which is not confined to a fairway, shall not make use of a fairway so as to cause obstruction to other vessels which can only navigate within such fairway.

**Regulations—Dockyard Port of Rosyth.**—Notwithstanding anything contained in the bylaws issued by the Forth Ports

Authority, vessels navigating within the limits of the Dockyard Port are subject to the regulations stated in The Dockyard Port of Rosyth Order 1975 as amended by Amendment Order 1980.

The limits of the Dockyard Port are the meridians of 3°15'20"W and 3°33'48"W, as shown on the chart.

All merchant and private vessels within the area are under the direction of the Queen's Harbor Master. Below are extracts from the regulations.

For the purpose of these rules the Dockyard Port Area does not include the harbors of Charlestown, Inverkeithing, Port Edgar, or South Queensferry.

Every vessel crossing from one side of the river to the other shall do so at a proper time having regard to vessels navigating up and down the river.

All power driven vessels navigating the waters of the Dockyard Port (except for those exempted by the Queen's Harbor Master) shall observe the following speed restrictions:

1. When E of the Forth Railway Bridge:
  - a. Vessels exceeding 100m in length—12 knots over the ground.
  - b. Vessels under 100m in length—15 knots over the ground.
2. When W of the Forth Railway Bridge:
  - a. All vessels—12 knots over the ground.
  - b. All vessels regardless of length shall not exceed a speed of 10 knots over the ground when within 0.5 mile of a vessel lying alongside Crombie Jetty or Hound Point Terminal or when within 0.5 mile of a vessel at anchor or at a buoy.

No vessel may pass another while under the Forth Railway Bridge.

Outbound power driven vessels have priority of passage under the Forth Railway Bridge over inbound power driven vessels.

When visibility is less than 0.5 mile, an inbound vessel shall not, under any circumstances, pass No. 19 Lighted Buoy without clearance to do so from the Forth Navigation Service.

When a power driven vessel is commencing to turn around, it shall signify the same by four short blasts of the whistle in rapid succession, followed after a short interval, if turning with its bow to starboard, by one short blast, or if turning with its bow to port, by two short blasts.

When a power driven vessel is for any reason unable to maneuver, it shall signify the same by sounding, at intervals not exceeding 2 minutes, three blasts of the whistle in succession, namely one prolonged blast followed by two short blasts.

**Regulations—Protected Channel.**—A Protected Channel has been established and extends from No. 13 Lighted Buoy and No. 14 Lighted Buoy, moored N of Oxcars, to the N passage under the Forth Railway Bridge, then to Rosyth Dockyard. On occasion, in order to ensure the safety of naval vessels, the protected channel is placed in operation by the showing of a Main Traffic Warning Light from the Naval Signal Station at North Queensferry.

When the Main Traffic Warning Light consists of a white light, occulting 5 seconds, with an additional quick flash-ing red light, the following rules apply:

1. No vessel shall enter the protected channel.

2. Any vessels within the protected channel, except alongside Hound Point Oil Terminal or specifically authorized, shall leave the channel.

When the Main Traffic Warning Light consists of a white light, occulting 5 seconds, with an additional quick flashing green light, the rules only apply to that part of the channel E of the Forth Railway Bridge.

In poor visibility, no vessels may enter that part of the protected channel between Beamer Rock Light and the Forth Railway Bridge without clearance from the Forth Navigation Service.

**Regulations—Restricted Movements.**—Movements to and from Hound Point Terminal, Braefoot Bay Terminal, and Rosyth Naval Base may require restrictions to be placed on the movements of other vessels.

**Anchorage.**—Upon arrival, a vessel shall apply to the harbor-master for an anchorage and shall not change such without permission of the harbor-master. No vessel shall anchor in the Forth for the purpose of discharging or loading cargo, bunkering, or taking water without permission of the harbor-master. Anchorages are assigned by the Forth Navigation Service; designated anchorages are shown on the chart.

Except in the case of an emergency, no vessel shall anchor in the designated fairway or any other area which has been designated as a prohibited anchorage.

## Firth of Forth—Approaches

**1.2 Fife Ness** (56°17'N., 2°35'W.), the N entrance point of the approach to the Firth of Forth, is formed by a dark cliff, 11m high, which rises from a foreshore of projecting ledges. A prominent house stands close W of the point; it has extensive outbuildings, a shrubbery, and a conspicuous square tower.

A light is shown from a white building, 5m high, standing on the point. A prominent radio tower, 47m high, stands at a coast guard station which is situated near the light.

When approaching from seaward, East Lomond, 421m high, and West Lomond, 519m high, will appear first. These detached sugarloaf mountains both stand about 22 miles W of Fife Ness. Also appearing first will be Largo Law, 288m high, and Kellie Law, 180m high, which stand 12 and 6.7 miles, respectively, WSW of Fife Ness. The summit of Largo Law appears notched from most directions and a cairn stands on its NE point. Largo Law and Kellie Law are connected by a ridge.

North Carr Rock, which dries 1.4m, is the outer edge of the foul ground extending about 1 mile NNE from Fife Ness. The beacon, which marks the NE extremity of North Carr Rock, consists of a structure, 5m high, and resembles, at a distance, a small vessel under sail.

Kilminning Craig, a prominent high and black rock, is located about 0.8 mile SW of Fife Ness.

**Gin Head** (56°04'N., 2°39'W.) is the S entrance point of the approach to the Firth of Forth. The coast in this vicinity is composed of cliffs or steep slopes with rocky points. The prominent ruins of Tantallon Castle stand on the edge of the cliff, about 0.2 miles SE of the point.

North Berwick Law, an imposing hill in the form of a vast pyramid, rises to a height of 185m close S of North Berwick, about 2 miles WSW of Gin Head. This landmark, which is covered to the summit with grass, is visible from a con-

siderable distance in clear weather. Traprain Law, an isolated hill, is 213m high and stands 6 miles S of Gin Head. This hill resembles but is less defined than North Berwick Law, for which it has been mistaken.

South Carr (Great Carr), a rocky ledge, extends nearly 0.5 mile offshore, 1 mile ESE of Gin Head. Its seaward extremity is marked by a prominent beacon, 12m high.

**1.3 Off-lying Dangers.—Marr Bank** ( $56^{\circ}23'N.$ ,  $1^{\circ}40'W.$ ), lying centered about 30 miles ENE of the Isle of May, has depths of 38 to 53m. On closer approach to the Firth of Forth, Wee Bankie ( $56^{\circ}12'N.$ ,  $2^{\circ}04'W.$ ) lies about 16 miles E of the Isle of May and has depths of 31 to 36m.

**Isle of May** ( $56^{\circ}11'N.$ ,  $2^{\circ}33'W.$ ), lying 5 miles SSE of Fife Ness, occupies a commanding position in the approach to the Firth of Forth. The coasts of this island are bold, except at its NW end, where rocks extend about 100m offshore. The island is formed of dark grey greenstone, with an elevated and uneven grassy surface. Its W side consists of cliffs, 49 to 62m high, which slope down irregularly to the E and terminate in a rocky coast, indented by several deep fissures. Several of these fissures serve as boat harbors.



**Isle of May Light**

Altarstones, a boat harbor, is located on the NW side of the island and used during E winds. Kirk Haven, another boat harbor, is located on the SE side of the island and used during W winds. The latter is the larger of the two, but it is obstructed by a sunken rock lying near the entrance.

A main light is shown from a prominent tower on a dwelling, 24m high, standing near the center of the island.

**Bass Rock** ( $56^{\circ}05'N.$ ,  $2^{\circ}39'W.$ ), a pyramidal rock, is located 1.3 miles NNE of Gin Head and is 115m high. It is precipitous on every side, but the surface of the rock shelves a little on the SW side, where landing may be effected in moderate weather. The rock is very conspicuous and its cliffs have been colored white by the deposit of sea birds. A main light is shown from a prominent tower with a dwelling, 20m high, standing on the S side of the rock. This light is mostly obscured to the N.

Craigleith, a rocky islet 51m high, is located 0.8 mile off the coast, 2.5 miles W of Bass Rock. Lamb Isle, a small islet 24m high, is located about 1 mile WSW of Craigleith.

**Fidra** ( $56^{\circ}04'N.$ ,  $2^{\circ}47'W.$ ), a dark and rocky islet 31m high, is located 0.5 mile off the coast, 1.2 miles W of Lamb Isle. It



**Bass Rock from S**

has a flat-topped mass at the S end, which becomes detached at HW, and the ruins of a chapel stand on it. During W winds, small vessels can anchor, in depths of 11 to 13m, off the E side of this islet. A main light is shown from a prominent tower, 17m high, standing on the N side of the islet.

A wreck, with a swept depth of 15.8m, lies about 3 miles W of Fidra Light and is marked by a lighted buoy.



**Fidra Light**

Eyebroughy, a small islet, is located 0.3 mile N of the coast, 1 mile WSW of Fidra. It is 6m high and connected by a reef to the mainland.

**1.4** Numerous production platforms, wells, and gas and oil pipelines lie in the waters off the coast of Scotland and in the approaches to the Firth of Forth. They may best be seen on the charts. Extreme caution is advised when navigating in the vicinity of such facilities. Some of the production platforms are equipped with racons.

The principal oil and gas fields in the area are listed below:

1. Fife Oil Field ( $56^{\circ}01'N.$ ,  $3^{\circ}11'E.$ ), with a storage tanker.
2. Angus Oil Field ( $56^{\circ}10'N.$ ,  $3^{\circ}05'E.$ ).
3. Hod Field ( $56^{\circ}11'N.$ ,  $3^{\circ}28'E.$ ).
4. Valhall Field ( $56^{\circ}11'N.$ ,  $3^{\circ}24'E.$ ).



5. Embla Field (56°20'N., 3°15'E.).
6. Eldfisk Field (56°23'N., 3°16'E.).
7. Edda Field (56°28'N., 3°06'E.).
8. Tommeliten Field (56°30'N., 2°56'E.).
9. Kefirs Field (56°33'N., 3°13'E.).
10. W Ekofisk Field (56°34'N., 3°05'E.).
11. Albuskjell Field (56°39'N., 2°56'E.).
12. Janice Field (56°24'N., 2°15'E.).
13. Clyde Field (56°27'N., 2°17'E.) with SPM.
14. Auk Field (56°24'N., 2°04'E.) with SPM.
15. Fulmar Field (56°29'N., 2°09'E.) with SPM.
16. Judy Field (56°42'N., 2°21'E.).
17. Curlew Field (56°44'N., 1°18'E.), with a storage tanker.
18. Tor Field (56°39'N., 3°20'E.).
19. Ekofisk Field (56°32'N., 3°20'E.).
20. Gyda Field (56°54'N., 3°05'E.).
21. Ula Field (57°06'N., 2°51'E.).
22. Cod Field (57°04'N., 2°26'E.).
23. Shearwater Field (57°02'N., 1°57'E.).
24. Franklin Field (56°58'N., 1°52'E.).
25. Elgin Field (57°00'N., 1°50'E.).
26. Banff Field (57°00'N., 1°18'E.), with a storage tanker.
27. Erskine Field (57°02'N., 2°04'E.).
28. Pierce Field (57°10'N., 2°18'E.), with a storage tanker.
29. Triton Field (57°05'N., 0°54'E.), with a storage tanker.

For oil and gas fields in the Norwegian sector of the North Sea, N and NE of the above fields, see Pub. 182, *Sailing Directions (Enroute) North and West Coasts of Norway*.

For oil and gas fields in the North Sea, NW of the above fields, see Pub. 141, *Sailing Directions (Enroute) Scotland*.

For oil and gas fields in the North Sea, E and SE of the above fields, see [paragraph 9.1](#).

**Regulations.**—A recommendation adopted by the IMO states that laden tankers should avoid the area lying between Bass Rock and the mainland coast to the S.

**Directions.**—See the accompanying graphic in [paragraph 1.1](#).

**Caution.**—Areas, within which seabed obstructions exist, lie in the approaches to the firth and may best be seen on the chart.

Numerous wrecks lie throughout the firth and the approaches and may best be seen on the chart.

Disused ammunition dumping areas, the limits of which are shown on the chart, lie about 2 miles E of the Isle of May.

A submarine gas pipeline, which may best be seen on the chart, extends across the Firth of Forth from the E side of Largo Bay (56°13'N., 2°55'W.), on the N shore, to the E side of Gullane Bay (56°03'N., 2°50'W.), on the S shore. Anchoring is prohibited within 1 mile of this pipeline.

Minesweeper vessels exercise in an area which is situated about 5 miles E of the Isle of May (56°11'N., 2°33'W.).

Submarines exercise frequently in the Firth of Forth and the approaches.

Several outfall pipelines extend seaward from the shores of the firth and may best be seen on the chart.

Several spoil ground and foul ground areas lie within the firth and may best be seen on the chart. Extensive foul ground

areas lie centered between the Isle of May and the mainland to the NW and 4 miles S of Methil (56°11'N., 3°00'W.).

Several of the islands and islets within the firth and approaches are designated bird sanctuaries or nature reserves and approaching or landing without permission is prohibited.

**1.5 North Channel** (56°03'N., 3°07'W.) is the main deep-water passage leading from seaward to the Forth Railway Bridge. It is entered about 7.5 miles W of Fidra Light and passes N of Inchkeith (56°02'N., 3°08'W.).

**Fairway Lighted Buoy** (56°03.5'N., 3°00.0'W.), equipped with a racon, is moored 4.8 miles ENE of Inchkeith and marks the outer entrance of this channel.

**Forth Deep Water Channel** (56°03'N., 3°04'W.), the recommended fairway for deep-draft vessels, leads in a W direction through North Channel and may best be seen on the chart. It extends from the Fairway Lighted Buoy to Hound Point Oil Terminal, situated 1 mile E of the Forth Railway Bridge. This fairway is marked by lighted buoys and has a least depth of 18.8m (2000).

After passing N of Inchkeith, the fairway leads S of Blae Rock, midway between Inchcolm and Oxcar, and then N of Drum Sand to the Forth Railway Bridge. Vessels may then pass N or S of Inch Garvie as required.

Vessels with drafts of less than 10m proceeding to the Forth Bridges may follow an alternative route, which lies close S of the Forth Deep Water Channel and passes 0.6 mile N of Inchkeith. When NW of Inchkeith, vessels using this alternate route should adjust course to rejoin the main fairway before reaching No. 10 Lighted Buoy (56°02'N., 3°13'W.).

**1.6 Inchkeith** (56°02'N., 3°08'W.) is located on the S side of the North Channel. A ridge, up to 55m high, occupies the center of the island and descends in regular slopes to the sea, except at the S end, which terminates in a cliff. The E side of the island is free of dangers except for a few rocks, awash, which fringe the N extremity. Foul ground and dangerous rocks front the W side of the island and extend up to about 0.4 mile seaward. Pallas Rock, with a depth of 2.8m, lies about 0.8 mile W of the S end of Inchkeith and is marked by a lighted buoy. Dangerous rocks and reefs extend up to about 0.8 mile S of the S end of the island. A conspicuous stranded wreck lies on the S end of Herwit, a drying shoal located about 0.8 mile SE of the S extremity of the island.

A shallow boat harbor, formed by piers, is situated on the W side of the island. Landing on the island is prohibited without prior permission.

A main light is shown from a prominent tower, 19m high, standing on the N part of the island.

Middle Bank, with depths of 3.5 to 7m, extends W from Inchkeith and forms a bar between North Channel and South Channel. Gunnet Ledge, with a least depth of 1.9m, lies on this bank, about 1.5 miles WSW of Inchkeith Light, and is marked by lighted buoys.

**Blae Rock** (56°03'N., 3°11'W.), over which the sea breaks heavily during E gales, is located 1.9 miles NW of Inchkeith Light and 1 mile SSW of Kinghorn Ness. The W side of this rocky shoal is steep-to with a deep scour. The S end of this shoal is marked by a lighted buoy which is equipped with a racon.

Rost Bank is located 1.2 miles E of Blae Rock and close S of the Forth Deep Water Channel. It is subject to tide rips during spring tides or strong winds.

**Oxcars** (56°01'N., 3°17'W.), a rocky islet, is located on the S side of the Forth Deep Water Channel, 3 miles ENE of Hound Point Terminal. It lies near the W end of Oxcars Bank, which extends about 2.7 miles E. A main light is shown from a prominent tower, 22m high, standing on this islet. A tide gauge, showing the clearance under the spans of the Forth Railway Bridge, is painted on the light tower.

Cow and Calves, an islet 4m high, is located on a rocky ledge on the N edge of Drum Flat, about 0.5 mile SSE of Oxcars.

Inch Mickery, a small island 15m high, is located 0.8 mile SSE of Oxcars. A boat pier is situated at the W side of the island.

Drum Flat and Drum Sand, with depths of less than 5.5m, extend E and W of Inch Mickery and form the S limit of the North Channel.

**1.7 Inchcolm** (56°02'N., 3°18'W.), a rocky island, is located 0.8 mile NW of Oxcars Light. It lies on the SW end of a shoal flat which separates North Channel from Mortimer's Deep. The ruins of an abbey, which include a conspicuous tower with a spire, stand near the center of this island.

A light is shown from a framework tower, 10m high, standing on the SE end of the island. Additional lights are shown from the N side of the island to aid navigation within Mortimer's Deep.

Car Craig, a conspicuous rocky islet 9m high, lies on the S edge of the shoal flat, about 0.5 mile NE of Inchcolm. Meadulse Rocks are located near the N side of the shoal flat, about 0.5 mile W of Car Craig. This group of rocks dries and is marked by a beacon at the W end.

Haystack, a bare rock 5m high, stands about 0.5 mile W of the W extremity of Inchcolm, at the W end of Mortimer's Deep.

**Inch Garvie** (56°00'N., 3°23'W.), a rocky islet 12m high, is located close off the E side of the center of the Forth Railway Bridge, at what may be considered the mouth of the River Forth. The center cluster of piers, which supports the Forth Railway Bridge, stands on the NW end of this islet. A lighted beacon is shown from the NW end and a tide gauge, showing the clearance under the span of the bridge, is situated close SE of it.

**Anchorage.**—A small vessel anchorage area, the limits of which are shown on the chart, is centered 0.8 mile ESE of Inchkeith Light and has depths of 8 to 10m. Vessels must make a special request to the Forth Navigation Service prior to using this anchorage.

**1.8 South Channel** (56°01'N., 3°05'W.) leads in a SW direction from the Fairway Lighted Buoy and passes S of Inchkeith (56°02'N., 3°08'W.). The section of this channel lying centered about 1 mile SSE of Inchkeith has depths of 17 to 34m and is known as Narrow Deep. South Channel Approach Lighted Buoy is moored about 3.3 miles E of Inchkeith.

**Leith Channel** (56°02'N., 3°04'W.), which may best be seen on the chart, is the fairway leading to the roadsteads of Leith and Granton. It is also known as the Alternate Channel. This

fairway leads SW and W from the vicinity of Fairway Lighted Buoy and passes through South Channel and Narrow Deep.

The E part of Leith Channel has depths of 10 to 13m and Narrow Deep has depths of 17 to 34m. The depths in the fairway then decrease towards the W where, in the roadstead, there are depths of 5.5 to 11m.

North Craig, a rocky shoal, lies on the S side of the fairway, about 2.5 miles ESE of Inchkeith Light. It has a least depth of 3.2m and is marked by a lighted buoy. Craig Waugh, a detached shoal, lies about 2.7 miles SE of Inchkeith Light. It dries and is marked by a lighted buoy.

Several shoal patches, with depths of less than 5m, lie close to the sides of the channel, near the W end of Narrow Deep. The dangers lying on the N side of the channel include those extending S from the S end of Inchkeith, which have previously been described.

**Caution.**—Several foul ground and spoil ground areas, which may best be seen on the chart, lie in the vicinity of North Channel and South Channel.

Several submarine cables, some disused, lie in the vicinity of North Channel and South Channel and may best be seen on the chart.

## Firth of Forth—South Shore

**1.9 North Berwick** (56°04'N., 2°43'W.), a small harbor, is located about 2 miles W of Gin Head. It is used by fishing and pleasure craft. A large hotel and two churches, with belfries, stand in the town and are all prominent. A large house, with a square tower at its W end, is situated on a hill behind the town and is conspicuous from the E and N.

The harbor entrance, which faces SW, is 8m wide and can be closed by booms in bad weather. The harbor dries at LW, but at HW there are depths of 5m at springs and 4m at neaps; local knowledge is required.

**Gullane Point** (56°02'N., 2°52'W.), formed by a hill of moderate elevation, is located 5 miles SW of North Berwick. It is black and rocky on the N side. Gullane House, standing 0.7 mile E of the point, is conspicuous.

**Hopetoun Monument** (55°59'N., 2°48'W.), standing about 4 miles SE of Gullane Point, is very conspicuous from seaward.

**Aberlady Bay** (56°01'N., 2°53'W.) is entered between Gullane Point and Craighelaw Point, 1.8 miles SSW. It consists mostly of drying sands on which several stranded wrecks are situated. Several dangerous wrecks lie W of this bay and may best be seen on the chart.

**Gosford Bay** (56°00'N., 2°54'W.) lies between Craighelaw Point and Ferny Ness, 1.5 miles S. It is obstructed by drying sands. Gosford House, with a cupola, stands near the coast, about 1 mile SSE of Craighelaw Point. It is situated in a clearing among the trees and is conspicuous from the N and W.

Seton Sands extend 2 miles WSW from Ferny Ness, the S entrance point of Gosford Bay, and end at Port Seton, a small fishing boat harbor, located close E of Cockenzie.

**Anchorage.**—Ten designated anchorage berths, allocated by the Forth Ports Authority for large vessels, lie centered about 3.5 miles W of Aberlady Bay and are indicated on the chart.

**1.10 Cockenzie** (55°58'N., 2°58'W.) ([World Port Index No. 31910](#)), a small harbor, is located about 5 miles SW of Gullane

Point. It is used by fishing vessels and pleasure craft. Two conspicuous chimneys stand in the vicinity of a power station, close W of the harbor. The entrance, which is 24m wide, faces N. The harbor has a depth of 5m at HWS and can accommodate vessels up to 18m in length and 2m draft.

Corsik Rock, which dries, lies close offshore, about 0.2 mile NE of the harbor entrance.

A small jetty, associated with the power station, is situated close W of the harbor and has a depth of 6m alongside at HWS.

**Musselburgh** (55°57'N., 3°03'W.), located 3.5 miles SW of Cockenzie, stands on low ground at the mouth of the River Esk. The town can be identified by its numerous factory chimneys. A conspicuous church, with a tall spire, is situated on the summit of a low hill which stands close S of the town. Fisherrow, a shallow and drying yacht harbor, is situated close W of the town.

The coast between Fisherrow Harbor and Leith, 4.5 miles NW, is low. It is fringed by a drying sandbank for about 3 miles and then, for 1.5 miles, by rocky ledges and patches, some of which dry, extending up to 0.8 mile from the coast.

Two conspicuous chimneys stand at the NW end of Portobello, about 3.2 miles WNW of Musselburgh.

**Anchorage.**—Small vessels may anchor, in a depth of 7m, in the roadstead, close N of the Cockenzie harbor entrance.

An anchorage area, designated for small vessels, lies centered 1.8 miles N of Musselburgh. It has depths of 6 to 8m and may best be seen on the chart

**Caution.**—An outfall pipeline extends NNE for 1.5 miles from a point on the coast located about 3.5 miles WNW of Musselburgh. Diffuser heads, situated at the seaward end of this pipeline, are marked by buoys.

## Leith (55°59'N., 3°11'W.)

World Port Index No. 31930

**1.11** Leith, the commercial port for the city of Edinburgh, stands at the mouth of a small stream which empties into the harbor. It is also a supply base for the North Sea oil and gas fields. The non-tidal harbor is enclosed by two large breakwaters. It consists of several basins and is entered through a lock.



Leith

**Tides—Currents.**—Tides rise about 5.6m at springs and 4.4m at neaps.

**Depths—Limitations.**—The harbor is approached from the roadstead through an entrance channel, 122m wide, which leads SSE and is dredged to a depth of 6.7m.

The entrance lock is 259m long and 31.6m wide between fenders. There are depths over the sill of 12.3m at MHWS and 6.7m at MLWS. An area, dredged to a depth of 10.3m, extends from the entrance lock into Western Harbor.

Imperial Dock has 1,396m of quayage and a depth of 9.5m. It can handle vessels up to 9.2m draft.

Albert Dock has 844m of quayage and a depth of 8m. It is entered through a passage, 18.2m wide, and can handle vessels up to 7.6m draft.

Edinburgh Dock, accessible through Albert Dock, has 1,120m of quayage and a depth of 8m. It is entered through a passage, 18.2m wide, and can handle vessels up to 7.6m draft.

Victoria Dock has 570m of quayage. It is entered through a passage, 18.2m wide, and can handle vessels up to 7.4m draft.

Outer Harbour has about 450m of quayage and depths of 8 to 9.5m alongside. It can handle vessels up to 9.2m draft.

Western Harbour, entered directly from the lock, has 970m of quayage and depths of 9.5 to 11.3m alongside. It can handle vessels up to 9.8m draft.

There are facilities for general cargo, bulk, container, ro-ro, ferry, passenger, tanker, and oil and gas field support vessels. Vessels of up to 240m in length, 30m beam, and 9.8m draft can be accommodated.

Repairs can be carried out at two dry docks. The largest can handle vessels up to 160m in length, 21m beam, and 7.3m draft.

**Aspect.**—Leith is marked by numerous factories and flour mills. The grain elevators situated at the W side of the harbor and the tower standing on the E breakwater are conspicuous. Several high apartment buildings stand S of Western Harbour and are prominent.

The city of Edinburgh extends beyond Leith. Edinburgh Castle and Nelson's Monument stand 2.5 miles SSW and 2.1 miles S, respectively, of the harbor entrance; both are very conspicuous. Salisbury Craig and Arthur's Seat, 248m high, stand about 2 miles S of Leith and are prominent.



Edinburgh Castle

The roadstead, N of the port, is approached via Leith Channel and Narrow Deep. An approach lighted buoy is moored in the roadstead, about 0.6 mile NNW of the harbor entrance, and marks the N end of the dredged entrance channel.



Newhaven, a small fishing and pleasure boat harbor, is located at the W side of the root of the W breakwater.

**Pilotage.**—The pilot station is situated at the root of the E breakwater and can be contacted by VHF. Pilots are available for entering Leith or Granton. [See Pilotage and Regulations for the Firth of Forth in paragraph 1.1.](#)

It should be noted that the approach to the roadstead off the port through Narrow Deep lies outside the compulsory pilotage area.

**Signals.**—Traffic signal lights, controlling entry and departure, are shown from both sides of the seaward and inner ends of the lock walls, as follows:

1. A red light indicates that the port is closed.
2. A green light indicates that a vessel may proceed into the lock.
3. Two green lights, displayed vertically, indicates on which side of the lock the vessel will be mooring.

Time signals are operated each day except Sunday, as follows:

1. A ball is lowered from a mast on Nelson's Monument at 1200 GMT.
2. A gun is fired from Edinburgh Castle at 1300 local time.

**Anchorage.**—Three anchorage areas, designated for large vessels, are situated about 1 mile NNE of the harbor entrance and have depths of 7 to 11m. An anchorage area, designated for small vessels, is situated about 1 mile N of the entrance to Granton Harbour and has depths of 7 to 10m. The limits of these areas may best be seen on the chart.

**Caution.**—An obstruction lies about 1 mile NE of the harbor entrance, close S of the easternmost anchorage area.

During the flood tidal current, an eddy sometimes forms in the vicinity of the breakwater heads.

**1.12 Granton** (55°59'N., 3°13'W.) ([World Port Index No. 31940](#)) is located about 1.5 miles W of Leith. The harbor is protected by breakwaters and consists of two basins, which are separated by a pier. A conspicuous gasholder tank, 100m high, stands near the shore, 0.8 mile W of the harbor.

The headquarters of the Forth Pilotage Authority is situated on the pier and can be contacted by VHF.

The harbor entrance, which is 104m wide, is approached through Leith Channel, Narrow Deep, and Leith Roads. The pier provides about 340m of quayage with a depth of 3.2m alongside. The E basin, which dries in places, is mostly used by yachts.

**Granton Point** (55°59'N., 3°15'W.) is located about 1 mile W of Granton Harbour. The coast between is bordered by rocks and ledges, some of which dry.

Hound Point is located 3.5 miles WNW of Granton Point and the coast between is fronted by Drum Sands and Drum Flat, which extend N to the S side of the fairway.

Cramond Island, located 1.5 miles WNW of Granton Point, is connected to the shore by a low water causeway, which extends SSW from the island.

Mons Hill, 116m high, stands 0.6 mile SSW of Hound Point and is prominent.

**Caution.**—An outfall pipeline extends about 0.8 mile NE from Granton Point and its seaward end is marked by a buoy.

**1.13 Hound Point Marine Terminal** (56°00'N., 3°22'W.) ([World Port Index No. 31972](#)) is situated about 0.4 mile offshore, NW of Hound Point. The terminal consists of two berths, each with a concrete island structure flanked by dolphins connected by catwalks. A central island structure links the two berths. Several submarine pipelines extend between the terminal and the shore. A number of mooring buoy are situated close SW of the W berth and are for the use of tugs.



**Hound Point Terminal**

**Tides—Currents.**—Tides rise about 5.6m at springs and 4.4m at neaps.

**Depths—Limitations.**—The terminal berths, which are situated adjacent to the S side of the recommended fairway, have a depth of 24m alongside. Vessels up to 300,000 dwt can be accommodated. Vessels with drafts up to 21.64m can be handled at springs and vessels with drafts up to 20.72m can be handled at neaps.

**Pilotage.**—Pilotage is compulsory and the terminal can be contacted by VHF. [See Pilotage and Regulations for the Firth of Forth in paragraph 1.1.](#)

**Regulations.**—Unauthorized personnel are not to approach within 100m of the terminal. Vessels must reduce speed if necessary and must not approach within 100m of tankers berthed at the terminal.

Anchoring is prohibited in the vicinity of the terminal.

Berthing is generally prohibited when the wind on or off the berth exceeds 20 knots, when the wind in any direction exceeds 30 knots, or when the visibility is less than 1 mile.

When a tanker of 50,000 dwt or more is navigating in the fairway between the Fairway Lighted Buoy and the terminal, the following rules apply:

1. The outbound tanker shall have right of way over any inbound tanker.

2. No two tankers, each being 50,000 dwt or more, shall pass each other when in the channel W of Oxcars Lighted Beacon. In addition, if either tanker is 120,000 dwt or more, then neither shall pass each other when in the channel W of Inchkeith.

3. An outbound tanker of 50,000 dwt or more, shall, after casting off its tugs, continue to be escorted by a tug until such tanker has reached No. 12 Lighted Buoy (56°02'N., 3°15'W.). A similar vessel inbound shall be escorted by a tug on reaching No. 12 Lighted Buoy.

4. Every tanker bound for the terminal shall regulate its approach so as not to arrive there prior to the agreed berthing time.

[See Regulations for the Dockside Port of Rosyth and for the Protected Channel in paragraph 1.1.](#)

**Caution.**—During special trial periods, two tankers may be permitted to enter the recommended fairway, W of Oxcars Lighted Beacon. The regulations for the Dockyard Port of Rosyth remain in force, but are modified at the times of these special trials.

## Forth Bridges

**1.14 Forth Railway Bridge** (56°00'N., 3°23'W.) is situated at the entrance of the River Forth and consists of three cantilevers which cross the navigable channels N and S of Inch Garvie. The center pier stands on Inch Garvie, thereby forming two navigation spans, each 521m long. The total height of the vertical columns is 112.7m and in the center of the navigable channels, for a width of 146m, there is a vertical clearance of 44m at MHWS under the spans and maintenance platforms. These platforms can be removed to add an additional clearance of 1.58m.

**Forth Road Bridge** (56°00'N., 3°24'W.), situated 0.5 mile W of the Forth Railway Bridge, consists of three spans. The center span, which crosses the navigable channel, lies between the two main support towers, 154.5m high and over 1,000m apart. It has a general vertical clearance at MHWS of 45m (46m below the central white light), under the maintenance platforms. These platforms can be removed to add an additional clearance of 2.45m.

**Directions.**—Recommended routes, both eastbound and westbound, are indicated on the chart and lead under the N navigation span of the Forth Railway Bridge. If required, vessels may also pass S of Inch Garvie and under the S span. [See Regulations for the Dockyard Port of Rosyth in paragraph 1.1.](#)

**Caution.**—Radar interference has been reported by vessels in the vicinity of the bridges. Vessels departing Port Edgar and Rosyth are unlikely to be detected on radar by vessels in the river. It was observed that vessels with antenna heights between 12m and 24m had no difficulty.

Vessels passing under the Forth Railway Bridge have observed magnetic anomalies, with compass deflections of up to 11°.



Forth Bridges from NW

**Queensferry** (55°59.5'N., 3°23.0'W.), located on the S shore between the bridges, has a small harbor which dries. It is used by yachts. A clock tower and a chimney stand in the town and are conspicuous. Small craft moorings lie offshore in this vicinity.

Long Craig Pier, situated about 0.4 mile E of the Forth Railway Bridge, extends 305m N from the S shore of the firth and dries alongside.

**North Queensferry** (56°01'N., 3°24'W.), located on the N shore between the bridges, has a small harbor which dries. It is used by yachts and small craft.

## Firth of Forth—North Shore

**1.15 Battery Point** (56°00'N., 3°23'W.), on the N shore, is located at the N end of the Forth Railway Bridge. A naval signal station, from which is shown the main traffic warning light, is situated close E of the bridge. [See Regulations for the Dockyard Port of Rosyth and the Protected Channel in paragraph 1.1.](#)

West Ness, the S entrance point of Inverkeithing, is located 1 mile N of Battery Point and the coast between is precipitous.

**Inverkeithing** (56°02'N., 3°24'W.) ([World Port Index No. 31960](#)), a harbor formed by a natural basin, is located on the W side of Inverkeithing Bay, which has depths of less than 4m. The entrance, which is 120m wide, is approached through a dredged channel. The harbor has two berths which are used to export scap and stone. The approach channel, indicated by a directional light, leads in a W direction. It has a least depth of 1m, near the entrance, and is subject to silting. Vessels up to 80m in length can be handled.

A quarry terminal, consisting of a T-head jetty, extends S from the shore, close E of the entrance to Inverkeithing, but is reported (2000) to be no longer in use.

**St. David** (56°02'N., 3°22'W.) ([World Port Index No. 31950](#)), located on the N side of Inverkeithing Bay, is a small harbor with a bottom of soft mud, used for shipbreaking. The entrance, formed by two piers, is 62m wide and faces W. A pier, situated at the S side of the harbor, has a depth of 5.5m alongside at HW. It was reported that the harbor is in a poor state of preservation.

Downing Point, on which stands a beacon, is located about 0.5 mile E of St. David and the coast between is fronted with rocky ledges.

Doig Rock, surrounded by shallow wrecks, lies about 0.4 mile SW of Downing Point. A mooring buoy, for use by naval vessels only, is situated about 0.3 mile SSE of this rock.

**1.16 Braefoot Point** (56°02'N., 3°19'W.) is located 1 mile NE of Downing Point and Dalgety Bay indents the shore between them. This bay is fronted by a muddy ledge and rocky patches, which dry.

Haystack, a bare rock 5m high, lies on a shoal about 0.3 mile S of Braefoot Point.

**Hawkcraig Point** (56°03'N., 3°17'W.), located 1.5 miles NE of Braefoot Point, is a cliffy headland which terminates in a sharp and well-defined point. A large white metal building, conspicuous from the E, stands close behind the point. Aberdour, a small and shallow harbor, is located 0.5 mile W of the point. The coast between this harbor and Braefoot Point is bold and wooded.

**Mortimer's Deep** (56°02'N., 3°18'W.), a narrow channel, extends between Inchcolm and Meadulse Rocks, on the SE side, and the dangers lying off the N side of the firth, on the NW side. Tidal currents within this channel can attain rates of

1 to 2 knots. Several detached rocks, which dry, lie along the N side of the channel.

**Regulations.**—No vessel is allowed to enter Mortimer's Deep without obtaining permission from the Forth Navigation Service (see paragraph 1.1). Passage through Mortimer's Deep and the fairways leading to it is prohibited when tankers are berthed at Braefoot Bay Marine Terminal or maneuvering in the area (see paragraph 1.17).

**Caution.**—Two disused submarine cables lie across the W part of Mortimer's Deep and may best be seen on the chart.

Several foul ground areas lie within Mortimer's Deep and may best be seen on the chart.

An outfall pipeline extends 0.6 mile SSE from a point on the shore located 0.3 mile N of Hawkraig Point.

**1.17 Braefoot Bay Marine Terminal** (56°02'N., 3°19'W.) (World Port Index No. 31945), a gas tanker terminal, is situated on the N side of Mortimer's Deep, about 0.3 mile E of Braefoot Point. It consists of two jetties flanked by dolphins. The W jetty exports propane, butane, and natural gasoline; the E jetty exports ethylene.



**Braefoot Bay Marine Terminal**

**Depths—Limitations.**—The terminal can be approached from the E through a fairway which leads WNW and WSW from the Forth Deep Water Channel. This fairway has a least depth of 9.9m (2000). The terminal can also be approached via a passage leading NNE between Haystack and the dangers fronting the W end of Inchcolm. This passage is narrow and has a least depth of 14.7m (2000).

The W jetty has a depth of 15m alongside and can accommodate vessels up to 60,000 cubic meters capacity. The E jetty has a depth of 10m alongside and can accommodate vessels from 4,000 to 12,000 cubic meters capacity. Vessels are limited to a maximum draft of 10.8m and an underkeel clearance of 2m is generally required for crossing the bar at the entrance of the E approach fairway.

**Aspect.**—The approach fairway leading through Mortimer's Deep is marked by lighted buoys. Ranges, which may best be seen on the chart, indicate both E and W approaches to the terminal.

**Pilotage.**—Pilotage is compulsory and the terminal can be contacted by VHF. See *Pilotage and Regulations for the Firth of Forth* in paragraph 1.1.

**Regulations.**—Vessels should send an ETA to the terminal at least 72 hours in advance, reporting any change greater than 12 hours. Vessels should send a confirmation of their ETA to the terminal 24 hours in advance, reporting any change greater

than 4 hours. Prior to arrival, vessels should provide the terminal with the following information:

1. Details of any defects affecting cargo operations or maneuverability.
2. Last port of call.
3. Last three cargoes.
4. Arrival draft.
5. Sailing draft.
6. Technical details as required by operator.

The following rules concern gas tankers using the terminal:

1. Every tanker bound for the terminal shall conduct its approach so as not to arrive prior to the agreed berthing time.
2. Berthing and unberthing is not permitted when visibility at the jetties is less than 0.5 mile.
3. Berthing and unberthing is not permitted when the mean wind speed at the jetties exceeds 27 knots.
4. Tankers of 145m or more in length should approach the W jetty through the W approach passage, between Haystack and Inchcolm, on a flood tide or at slack water, and moor heading NE.
5. Tankers of less than 145m in length may approach the E jetty through the E approach fairway and moor, on the ebb tide or at slack water, heading SW. Such vessels will be required to swing, using tugs, on departure.
6. Tankers departing the terminal may be directed to transit the E or W approach routes.
7. When a tanker is turning from the main channel into the W approach passage, no other vessel shall enter that section of the main channel located between No. 13 Lighted Buoy and a line joining Hound Point, on the S shore, to Hopeward Point, on the N shore.
8. When turning into the E approach fairway, no other vessel shall enter that section of the main channel located between No. 7 Lighted Buoy and No. 11 Lighted Buoy.
9. On departure, when a tanker is entering the main channel from the E fairway, no other vessel shall enter that section of the channel lying between No. 7 Lighted Buoy and No. 11 Lighted Buoy. In addition, if such tanker is loaded with liquefied gas and more than 145m in length, no other vessel shall pass in the opposite direction or overtake and approach within 1 mile of the tanker while in any waters lying between No. 11 Lighted Buoy and No. 3 Lighted Buoy.
10. On departure, when a tanker is entering the main channel from the W passage, no other vessel shall enter this section of the channel lying between No. 13 Lighted Buoy and a line joining Hound Point to Hopewood Point. In addition, if such a tanker is loaded with liquefied gas and is more than 145m in length, no other vessel shall pass in the opposite direction or overtake and approach within 1 mile of the tanker while in any water lying between a line joining Hound Point to Hopeward Point and No. 3 Lighted Buoy.
11. When tankers bound to or from the terminal are navigating within or outside of the main channel between No. 3 Lighted Buoy and a line joining Howard Point to Hopewood Point, it may be necessary to hold or slow other vessels. Inbound vessels may be directed to a holding area, located not less than 1 mile N of No. 3 Lighted Buoy, until an outbound tanker is clear.
12. No vessel shall enter Mortimer's Deep when the terminal is occupied or when a tanker is maneuvering in the area,



except that a second tanker may enter and berth when a first tanker has been securely berthed at the terminal.

13. Radio transmissions and the operation of radar are prohibited in the vicinity of the terminal. Vessels may test their normal equipment provided that no source of ignition is present and permission has been obtained.

**1.18 Burntisland** (56°03'N., 3°14'W.) ([World Port Index No. 32030](#)) stands prominently on a low peninsula located 1.5 miles E of Hawkraig Point. The harbor, which handles bauxite for a nearby aluminum works, consists of two wet docks leading off an outer tidal basin.



**Burntisland**

**Tides—Currents.**—Tides rise about 5.6m at springs and 4.5m at neaps.

**Depths—Limitations.**—The outer tidal basin entrance, formed by two piers, is 76m wide and has a controlling depth of 3.1m (2000). Vessels cannot enter the basin at LWS.

The West Dock is entered via a passage from the NW corner of the outer basin. It has a depth of 6.4m over the gate sill at HWS. This dock is not used for commercial shipping; however, a fitting out and fabrication berth, which can handle vessels up to 167m in length and 23m beam, is situated on the W side.

East Dock is entered through a set of storm gates at the E side of the outer basin. The entrance is 18.29m wide and has a depths of 8.6m over the gate sills at HWS and 7.5m at HWN. Vessels up to 8,000 dwt, 122m in length, 16.8m beam, and 6.7m draft can be accommodated.

**Aspect.**—The Binn, a precipitous hill, rises about 0.8 mile N of the harbor and is 190m high. A conspicuous radio mast stands on this hill about 1 mile N of the harbor entrance. Another conspicuous radio mast, 130m high, stands about 0.7 mile NW of the harbor entrance.

A large shed, 32m high, is situated close W of West Dock and is conspicuous from seaward. A prominent radar tower stands close S of the entrance to East Dock.

**Pilotage.**—Pilotage is compulsory. Pilots may be contacted by VHF and embark within 1.5 miles of the entrance. [See Pilotage and Regulations for the Firth of Forth in paragraph 1.1.](#)

**Anchorage.**—Three designated anchorage berths, with depths of 13 to 28m, mud, are situated within the roadstead lying between the harbor and the main fairway. These berths are mainly used by vessels, of all sizes, which discharge bauxite into barges.

**Caution.**—A submarine cable lies in the outer tidal basin.

A wreck, swept to a depth of 12.6m, lies about 0.9 mile SSE of the harbor entrance.

A degaussing range area, the limits of which are shown on the chart, extends up to about 1.3 miles S from the shore, 0.5 mile W of the harbor entrance.

An outfall pipeline, with a diffuser at the seaward end, extends about 0.8 mile S from a point on the shore located 0.4 mile NW of the harbor entrance and may best be seen on the chart.

**1.19 Kinghorn Ness** (56°04'N., 3°10'W.), fronted by drying rocks, is located 2 miles E of Burntisland. The bay lying between is fronted by a widespread sand flat and patches of rocks which dry.

Three conspicuous blocks of buildings stand near the shore about 2.3 miles NNE of Kinghorn Ness. The coast between is fronted by rocky patches.

**Kirkcaldy** (56°07'N., 3°09'W.) ([World Port Index No. 32040](#)), a small harbor, is located 3.2 miles NNE of Kinghorn Ness. The town, with its suburbs, extends along the shores of Kirkcaldy Bay. The harbor, which is used only by local fishing boats, consists of a tidal basin and has an entrance, 46m wide. Depths in the harbor are no longer maintained and the former wet dock is to be filled in.

**Dysart** (56°08'N., 3°07'W.) ([World Port Index No. 32050](#)), a small town, is situated 1.5 miles NE of Kirkcaldy. It stands on the crest of a slope backing the shore and is fronted by a small yacht harbor. The coast between is fringed by shoals which extend up to about 0.5 mile seaward. A church, with a prominent spire, and some factories are situated in the NE part of the town.

Wemyss Castle stands amongst the woods, 1.5 miles NE of Dysart, and is conspicuous. East Wemyss, with a prominent factory building and a chimney at its SW end, is situated 2.5 miles NE of Dysart. The ruins of a castle, which resemble two towers standing slightly apart, are situated on the crown of a slope about 0.3 mile NE of East Wemyss.

Buckhaven, a village with a silted up harbor, is situated on a slope about 4 miles NE of Dysart.

**Anchorage.**—Kirkcaldy Bay is free from dangers, but the bottom consists of rock covered with sand and the holding ground is not good. A recommended anchorage berth within the roadstead lies, in a depth of 10m, about 0.7 mile ESE of the outer pier head. Vessels should not anchor here in the winter during onshore winds.

An anchorage area, designated for small vessels, lies centered about 1 mile SE of the harbor and may best be seen on the chart.

Nine designated anchorage berths, for large vessels, are situated off Kirkcaldy Bay and may best be seen on the chart. These anchorage berths are not to be used by tankers bound for Hound Point Terminal.

**Caution.**—A wreck, with a swept depth of 8.9m, lies about 1 mile E of Dysart and is marked by a lighted buoy.

An outfall pipeline, with a diffuser at the seaward end, extends about 0.6 mile SE from the shore at Buckhaven and is marked by a lighted buoy.

**1.20 Methil** (56°11'N., 3°00'W.) ([World Port Index No. 32070](#)), a small port with a large steel foundry, stands on the W

side of Largo Bay. It consists of two wet docks and an open wharf. Structures for the North Sea oil fields are fabricated here and wood products are handled.

**Tides—Currents.**—Tides rise about 5.5m at springs and 4.4m at neaps.

**Aspect.**—A prominent chimney, 91m high, stands at a power station, 0.7 mile NE of the harbor entrance. Two conspicuous blocks of buildings are situated about 0.4 mile W of the harbor entrance.

Several conspicuous cranes, 133m high, stand in the vicinity of a fabrication yard about 0.5 mile SW of the harbor entrance.

**Depths—Limitations.**—The harbor is protected to the E by an outer pier and approached through a short channel, 15m wide, with a dredged depth of 2.3m (1993). Wet Dock No. 2 is entered through a gate, 15m wide, which is normally operated for a period of 3 hours prior to HW. The gate has a depth over the sill of 7.9m at HWS. This dock provides 350m of berthage with a maintained depth of 6m.

Wet Dock No. 1, with about 500m of berthage, is entered from the N end of Wet Dock No. 2 through a passage, 15m wide. A disused wet dock and its entrance channel are situated close E of these docks.

Vessels up to 102m in length, 14.6m beam, and a 5.5m draft can be accommodated in the wet docks.

An open wharf, 190m in length, is situated adjacent to a rig fabrication area, about 0.3 mile WSW of the outer pier head. It partly dries alongside and has several mooring buoys situated in the vicinity. Two small wet docks are situated close S of this wharf.

**Pilotage.**—Pilotage is not compulsory, but is recommended and available. The harbor can be contacted by VHF and pilots generally board vessels in the roads. [See Pilotage and Regulations for the Firth of Forth in paragraph 1.1.](#)

**Signals.**—The following traffic signals are displayed from a mast at the E side of the entrance to Wet Dock No. 2 from 3 hours before HW until both dock gates are closed:

1. A red light indicates that the docks are closed and vessels should remain in the roads until another signal is shown.
2. A red light over a green light indicates that it is dangerous to enter and vessels should bring up in the roads.
3. A red light over a white light indicates that vessels may enter Wet Dock No. 2.

**Anchorage.**—An anchorage area, designated for small vessels, lies centered 0.8 mile SE of the harbor entrance.

Five anchorage berths, with depths of 12 to 33m, lie in an area centered about 2.5 miles SE of the harbor entrance. These anchorage berths are designated for rigs or large vessels and may best be seen on the chart.

**1.21 Largo Bay** (56°12'N., 2°56'W.) lies between Methil and Kingraig Point, 5 miles ENE. Craig Heugh, a ridge 64m high, rises from Kingraig Point and is prominent, even at night. A conspicuous radio tower, 88m high, stands on this ridge.

**Largo** (56°13'N., 2°56'W.), with a small and shallow harbor, is located at the head of the bay, 3 miles NE of Methil. The harbor is only used by local fishing boats and pleasure craft. A railway bridge, with four arches, is situated in the vicinity of the town and is conspicuous from seaward.

Largo Law, a prominent hill, rises about 1.3 miles NNE of Largo and is 288m high.

**Elie Ness** (56°11'N., 2°49'W.), a low and rocky headland, is located 1.8 miles E of Kingraig Point. A main light is shown from a prominent tower, 11m high, standing on the SW part of this headland.



**Elie Ness Light**

Elie, a village, stands at the head of Elie Bay, which is entered between Elie Ness and Chapel Ness, 0.7 mile W. The bay affords shelter from all winds except those between SE and SW. A small pier, situated on the E side of the bay, is connected to the village by a causeway and has depths of 4 to 5m alongside at HWS. During E gales, small craft and fishing boats shelter within this bay, but local knowledge is required.

East Vows, a rocky shoal which dries 3.1m, lies 0.2 mile S of Chapel Ness and is marked by a prominent beacon. West Vows, a rocky shoal which dries 3.6m, lies 0.2 mile SW of Chapel Ness. Thill Rock, which dries 0.6m, lies on the E extremity of a ledge, 0.3 mile SE of Chapel Ness and is marked by a buoy.

The coast between Elie Ness and Fife Ness, 9.5 miles NE, consists of low cliffs and steep banks with a rocky foreshore.

**St. Monance** (St. Monans) (56°12'N., 2°46'W.), a small harbor, is located 2 miles NE of Elie Ness Light. A church, with a conspicuous spire, stands close to the coast at the W end of the town. The ruins of a castle, which stand on the top of a slope, are situated 0.5 mile SW of the church and are very prominent from seaward. The harbor dries and is used only by fishing boats. Local knowledge is required. Vessels should not approach the harbor in strong SE winds or when there is a NE swell.

**Anchorage.**—Largo Bay affords good anchorage even during E gales. An anchorage area, designated for small vessels, lies centered 1.4 miles S of Largo and may best be seen on the chart.

**Caution.**—Drilling rigs, drilling vessels, and large oil-related structures, proceeding to the anchorage berths SE of Methil, may be encountered in the waters S of Largo Bay.

**1.22 Pittenweem** (56°13'N., 2°44'W.), a small fishing harbor, is located 1.3 miles NE of St. Monance. The town may be readily distinguished as it stands upon higher ground than any other in the vicinity. A conspicuous church, with a short spire and a clock tower, stands at the E end of the town which is partly built on the crest and face of a slope. The harbor en-



trance, which faces SW, is 23m wide and has a depth of 1.5m. Vessels up to 27m in length can enter.

**Anstruther Easter** (56°13'N., 2°42'W.) is located 1.2 miles NE of Pittenweem. It forms the central portion of a long straggling town, of which Anstruther Wester and Cellardyke are the extremities. The small harbor, named Anstruther Union, is protected by two piers and used by fishing vessels. It dries and has a depth of 4.6m at HWS. The entrance, which has a depth of 0.3m, faces SW and is indicated by a lighted range. Entry should not be attempted in strong E or S winds.

**Crail** (56°15'N., 2°38'W.) stands on a moderately-high slope, 3.2 miles NE of Anstruther. The village may be identified by a church, with a square tower surmounted by a spire, standing at its W end. The small harbor is used by fishing boats. The entrance faces W and is 7m wide. It is protected by booms during heavy weather.

**Fife Ness** (56°17'N., 2°35'W.), the N entrance point of the approach to the Firth of Forth, is located 2 miles NE of Crail and has been [previously described in paragraph 1.2](#).

**Caution.**—Submarine cables, which may best be seen on the chart, extend seaward from the vicinity of Crail and Anstruther Easter to the Isle of May.

## The River Forth

**1.23** The River Forth, which may be said to join the Firth of Forth at the Forth Railway Bridge, has a least depth of 9m in the main fairway as far as Craigmores Rocks (56°02'N., 3°36'W.), 7.5 miles above the bridge. However, there is no swinging room for deep-draft vessels above Crombie, 6 miles W of the bridge. Between Craigmores Rocks and Hen and Chickens, about 1 mile W, the main fairway has a least depth of 8m. An approach fairway, leading to Grangemouth, then continues W from Hen and Chickens and is dredged to a depth of 6.5m.

Above the Forth Railway Bridge, the river expands to a width of nearly 2 miles; the main fairway is marked by lighted buoys and beacons. Pilotage is compulsory. [See Pilotage for Firth of Forth in paragraph 1.1](#).

**Beamer Rock** (56°00'N., 3°25'W.), which dries, lies on the N side of the main fairway, about 0.3 mile W of the Forth Road Bridge. It is marked by a light shown from the SE side. A shoal, with a depth of 9.6m, lies close WNW of the light structure.

**Tides—Currents.**—Within the River Forth, the times at which the currents begin and their velocities, are subject to great changes. Generally, at springs, there is a relatively short and strong incoming current and a longer and weaker outgoing current. At neaps, the currents are of nearly equal duration; the outgoing current being slightly stronger. With strong and continued E winds, both the duration and the velocity of the incoming currents may be increased; the outgoing currents may be correspondingly decreased. When snow is melting and during and after heavy rain, both the duration and the velocity of the outgoing currents will be increased; the incoming currents will be correspondingly decreased. The meteorological effects increase as the river is ascended.

Off Bo'ness, the incoming current begins about 4 hours 30 minutes before HW at Leith; the outgoing current begins about 1 to 2 hours after HW at Leith. At Kincardine, the incoming

current begins about 4 hours before HW at Leith; the outgoing current begins about 1 hour after HW at Leith.

The spring velocity at Bo'ness is about 2 knots and at Kincardine about 2.8 knots.

The phenomenon known as the "leaky tide" is often discernible at Kincardine. When this occurs, the incoming or outgoing current is interrupted soon after it begins by a short period of outgoing or incoming current.

**Regulations.**—When the main traffic warning light is shown from the Navy signal station, situated close NE of Battery Point, all vessels on the River Forth should navigate with caution. [See Regulations for the Dockside Port of Rosyth and the Protected Channel in paragraph 1.1](#).

**Anchorage.**—The river above Beamer Rock affords anchorages for all classes of vessels, in depths of 8 to 30m, mud, but the holding ground is not good. During the flood tide at springs, the eddies caused by Beamer Rock are reported to cause vessels, which anchor within 0.8 mile of the rock, to sheer considerably.

Designated anchor berths, reserved for naval ships, are situated in the river between Rosyth and Charlestown (56°02'N., 3°30'W.) and may best be seen on the chart.

An anchorage area, designated for small commercial vessels, is situated in the river SSE of Charlestown and may best be seen on the chart. Three of the anchorage berths, reserved for naval ships, lie within this area.

Bo'ness Anchorage, with six designated berths for commercial vessels, is situated in the middle of the river, N of Bridge-ness (56°01'N., 3°35'W.), and may best be seen on the chart.

**Caution.**—The stretch of water lying between Bo'ness and Culross and in the vicinity of Craigmores Rocks can be dangerous for small craft during conditions of flood tide and a strong SW wind.

Submarine gas pipelines, as indicated on the chart, extend across the River Forth about 4.5 miles and 6 miles above the bridges.

Submarine cables, as indicated on the chart, extend across the River Forth about 4 miles above the bridges.

## Rosyth (56°01'N., 3°26'W.)

[World Port Index No. 31980](#)

**1.24** Rosyth, is situated on the N shore of the River Forth, about 1.2 miles WNW of North Queensferry. The countryside between is wooded and cultivated. The port consists of a main basin, which is entered through a lock; a small tidal basin; and several tidal quays. Three dry docks are situated on the N side of the main basin.

Rosyth was formerly a naval dockyard base. The facilities at the Main Basin, South Arm, and Middle Jetty are now privately owned by a defense contractor. The remainder of the base is operated as a commercial port.

**Tides—Currents.**—Tides rise about 5.8m at springs and 4.7m at neaps.

In the main channel, both flood and ebb currents run for 4 hours and attain maximum spring rates of 1.5 knots. A branch of the flood runs out of the main channel through the boat channel and rejoins the main current in the river; conversely, a



### Rosyth

branch of the ebb sets through the boat channel and joins the main ebb current in main channel.

**Depths—Limitations.**—The main approach channel has a projected dredged depth of 8.8m, but is subject to frequent silting.

The main basin is entered through a lock which can accommodate vessels of up to 244m in length and 30m beam. There is a depth of 11m over the sill and the basin is normally maintained at a minimum depth of 10.6m. The lock can generally be used only from 3 hours before HW until 2 hours after HW. In addition, transit into or out of the main basin can be made through the direct emergency entrance gate; however, this is rarely used. A depth of 6.6m is maintained on the sill of the direct emergency entrance gate, which can be used only on a rising tide between the time the tide reaches a height of 4.25m and 30 minutes before HW.

A depth of 11m is normally maintained alongside all the berths within the main basin. The largest of the three drydocks situated at the N side is 311m long and 42.4m wide. It has a depth of 12.4m over the sill at HWS.

South Arm extends SE from the SE corner of the entrance lock. It has a berth 200m long with a depth of 10.5m alongside.

North Wall extends along the N side of the main channel. It has a berth 550m long, with a depth of 8.3m alongside.

Middle Jetty extends E from close N of the direct entrance gate and has a depth of 6.7m alongside. Tidal basins, with depths of 4 to 4.9m, are located N of Middle Jetty and are used by small vessels.

There are facilities for general cargo, cruise, ro-ro, bulk, and ferry vessels. Vessels up to 250m in length, unrestricted beam, and 44m air draft can be handled in the harbor.

**Aspect.**—A dredged approach fairway, known as the Main Channel, leads from close W of the bridges to the dockyard. It is marked by lighted buoys and beacons, and is indicated by directional lights which may best be seen on the chart.

Main Channel is fronted on the S side by Whale Back, a shallow shoal. Dhu Craig, a bank with depths of less than 1m, lies close W of Whale Back and is separated from it by a boat channel with a least depth of 3m.

Admiralty House and a flagstaff stand close to the shore on the E side of the Main Channel and are very prominent. Radio masts, standing 1.2 miles NW of North Queensferry, and a chimney, standing 0.2 mile N of the drydocks, are conspicuous. The prominent ruins of a castle are situated 0.5 mile E of the

drydocks and a prominent fixed crane stands on the W side of the main basin.

**Pilotage.**—Pilotage is compulsory for commercial vessels within the limits of the Dockyard Port of Rosyth. [See Pilotage for the Firth of Forth in paragraph 1.1.](#) Pilots for naval and other government vessels can be contacted by VHF and generally board about 1 mile E of the Forth Railway Bridge.

**Signals.**—A naval signal station is situated about 200m NE of Battery Point at the N end of the Forth Railway Bridge. The main traffic warning light is shown here when the Protected Channel is in operation. [See Regulations for the Dockyard Port of Rosyth in paragraph 1.1.](#)

**Regulations.**—Rosyth Dockyard and the Main Channel are situated within the limits of the Dockyard Port of Rosyth. [See Regulations pertaining to the Dockyard Port of Rosyth and the Protected Channel in paragraph 1.1.](#)

A prohibited area, which may be best seen on the chart, is situated in the approach to Entrance Lock. This area is activated whenever Entrance Lock is occupied by nuclear-powered vessels. Flashing yellow lights are displayed in continuous operation while the lock is occupied.

**Directions.**—Vessels approaching from the E should pass NE of Beamer Rock and keep to the center of the Main Channel, which leads NW and WNW. Recommended tracks in the approaches under the bridges are indicated on the chart. Vessels approaching from the W may pass W of Beamer Rock; however, caution should be exercised when the E current is running.

**Caution.**—Depths throughout the entire area of the dockyard and in the Main Channel are maintained by dredging. However, due to annual silting, depths may be less than charted and the harbor master should be consulted.

In the vicinity of North Wall and the close approaches to the main basin, circular tidal currents, with rates not exceeding 0.5 knot, occur both on the flood and the ebb. A strong SW set has also been reported on the N side of Middle Jetty, at about 1 hour before HW.

**1.25 The River Forth—North Shore.**—Between Limekilns (Brucehaven), a small boat harbor located 1 mile W of Rosyth, and Charlestown, 1.2 miles W, the shore is backed by a steep ridge on which is situated the wooded park of Broomhall; a large house stands within the park, but is only visible from the SE. Gellet Rock, a square mass of limestone, 15m high, stands within the park. Its top is generally level with the tops of the trees, 56m high, and surmounted by a flagstaff.

**Charlestown** (56°02'N., 3°30'W.), a small yacht harbor, is formed by piers and protected from all winds. It dries and has a depth of 4m over soft mud at HWS.

**Crombie** (56°02'N., 3°32'W.) is located 0.9 mile W of Charlestown. Two conspicuous jetties extend S from the shore to the edge of the main fairway. The berth at the head of the W and outer jetty has a dredged depth of about 11.2m alongside, but is subject to heavy siltation.

**Hen and Chickens** (56°02'N., 3°38'W.) lies on the edge of a drying bank, 3.4 miles W of Crombie. It is formed by an isolated patch of sand, mud, and rocks, which dries.

Craigmore Rocks, another rocky patch which dries, lies 1 mile E of Hen and Chickens, at the S end of an area of reclaimed land. A prominent chimney stands on the SE part of this area.

Between Crombie and Hen and Chickens, the conspicuous villages of Torryburn, Low Torry, and Culross are situated on the N shore of the river. A prominent chimney stands close W of Low Torry. A church, with a spire, and the ruins of an abbey stand near Culross and are conspicuous.

A very conspicuous chimney, 185m high, stands at the power station situated at Longannet, 1.7 miles W of Hen and Chickens.

**Caution.**—Several mooring buoys are situated in the river between Rosyth and Charlestown. Vessels moored at these buoys occasionally do not exhibit any lights or sound fog signals.

Several outfall pipes extend into the river from the N shore and may best be seen on the chart.

A Protected Area is situated in the vicinity of the jetties at Crombie which are the property of the Ministry of Defence. Vessels are prohibited from entering this area without authorization. The area is marked by buoys and may best be seen on the chart.

**1.26 The River Forth—South Shore.—Port Edgar** (56°00'N., 3°25'W.) ([World Port Index No. 31970](#)), formerly operated by the Royal Navy, is located close W of the Forth Road Bridge. The harbor is formed by two breakwaters which converge and create an entrance, 222m wide. A marina, protected by a floating breakwater, is situated within the harbor and yachts up to 12m in length and 2.4m draft can be accommodated. A commercial berth is situated at a pier in the SW part of the harbor; vessels up to 61m in length can be handled at all stages of the tide, except in extreme wind conditions.

A prominent white house is situated close to the shore, 1.2 miles W of Port Edgar.

Black Ness, located 3.5 miles W of Port Edgar, is easily distinguished by the high walls of a conspicuous old castle which stands on a projecting point.

Binns Tower, 108m high, stands on a hill about 1 mile S of Black Ness and is conspicuous.

**Bridgeness** (56°01'N., 3°35'W.) is situated 2.5 miles W of Black Ness. A very conspicuous tower, which was once a windmill, stands on a mound and shows above the surrounding houses of the town. A church, with a prominent spire, stands 0.3 mile ESE of the tower.

Bo'ness, fronted by a closed harbor, is located 0.6 mile W of Bridgeness.

**Caution.**—A reserved area, the limits of which are shown on the chart, extends about 0.6 mile from the shore, 2 miles W of Port Edgar.

Several mooring buoys are situated in the river between Port Edgar and Black Ness. Vessels moored at these buoys occasionally do not exhibit any lights or sound fog signals.

Several outfall pipes extend into the river from the S shore and may best be seen on the chart.

## **Grangemouth (56°01'N., 3°43'W.)**

[World Port Index No. 32010](#)

**1.27** Grangemouth stands on the S shore of the River Forth at its junction with the River Carron. The harbor is entered through a lock and consists of wet docks, all of which are interconnected.



**Grangemouth from NE**

**Tides—Currents.**—Tides rise about 5.7m at springs and 4.5m at neaps.

**Depths—Limitations.**—The approach fairway, which has a least width of 120m, is dredged to a depth of 6.5m. It is marked by lighted buoys and beacons and entered S of Hen and Chickens.

A diversionary channel, 200m wide, lies N of the main fairway and is marked by lighted buoys and beacons. It is entered from the fairway, 0.4 mile SW of Hen and Chickens, and rejoins it 0.4 mile NE of the entrance lock.

The entrance lock is 238m long and 31m wide (29.1m between fenders). It has a depth of 11.7m over the sill at HWS.

Eastern Channel Basin, entered from the lock, provides seven tanker berths. These berths are 82 to 210m long, with depths of 11m alongside.

Grange Dock, entered from Eastern Channel Basin via East Cut, has 2,175m of quayage, with a depth of 7.9m alongside.

Carron Dock, entered from Grange Dock via Western Channel, has 775m of quayage, with a depth of 7m alongside.

Old Dock and Junction Dock, located close W of Carron Dock, are no longer in use.

There are facilities for heavy lift, ro-ro, general cargo, container, bulk, tanker, and gas vessels. Vessels up to 32,000 dwt, 183m in length, and 26m beam can be accommodated. Generally, maximum drafts are limited to 10.6m for tankers and 7.6m for other vessels.

Repairs can be carried out at a dry dock, which can handle vessels up to 105m in length, 16.1m beam, and 5.6m draft.

**Aspect.**—The entrance lock, which leads into the Eastern Channel Basin, is protected by approach jetties situated on each of the outer sides. The lock lies close SE of the old entrance which is now disused and sealed off. The harbor can be identified by two prominent container cranes, standing on the E side of Grange Dock, and several conspicuous oil tanks,

standing on both sides of the lock. Part of the bay located SE of the entrance lock is being reclaimed.

**Regulations.**—See [Regulations for the Firth of Forth in paragraph 1.1.](#)

**Pilotage.**—Pilotage is compulsory in the river. See [Pilotage for the Firth of Forth in paragraph 1.1.](#) Harbor pilots can be contacted by VHF and will board S of Hen and Chickens.

The lock control office should be contacted before passing Hen and Chickens with regard to the depth over the lock sill. The lock office can be contacted by E-mail, as follows:

[grangemouth.lockgates@forthports.co.uk](mailto:grangemouth.lockgates@forthports.co.uk)

**Anchorage.**—An anchorage area, designated for small vessels, lies centered 0.5 mile NE of the lock entrance and may best be seen on the chart.

**1.28 The River Forth—Upper Part.**—Between Grangemouth and Kincardine, 2 miles NW, the river channel is narrowed by shoals on either side to a width of about 270m. Inch

Brake, a shoal with a least depth of 1.3m, lies in the channel about 1 mile NW of the power station at Longannet and is marked by a buoy.

**Kincardine** (56°04'N., 3°43'W.) stands on the NE bank of the river. Prominent landmarks include a clock tower, a church, and two chimneys, 122m high, standing at the power station located close NW of the town. The navigable channel off the town contracts to a width of about 220m; this causes an acceleration of the tidal current and the ebb has sometimes attained a velocity of 4 knots in this vicinity.

A former swing bridge spans the river at Kincardine; it is now permanently closed. It has two passages, each 46m wide, with a vertical clearance of 9m.

**Stirling** (56°07'N., 3°56'W.), located 62 miles above the Isle of May, is considered to be the head of navigation of the river. Small craft, with drafts up to 3m, can reach as far as here at HWS. Local knowledge is required.

For safety reasons, commercial vessels do not transit above the bridge at Kincardine. In addition, pilotage is unavailable, the channel is not buoyed, and the depths continually change.